

J605 Rec'd F37770 29 MAR 2002

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|--|--|---|--|--|--|
| FORM PTO-1390<br>(REV 10-2000)   |  | U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE |  | ATTORNEY'S DOCKET NUMBER<br>P/1228-150                               |  |
| TRANSMITTAL LETTER TO THE UNITED STATES<br>DESIGNATED/ELECTED OFFICE (DO/EO/US)<br>CONCERNING A FILING UNDER 35 U.S.C. 371 |  |   |  | U.S. APPLICATION NO. (If known, see 37 CFR 1.51)<br><b>10/089597</b> |  |
| INTERNATIONAL APPLICATION NO.<br>PCT/SE00/01874  |  | INTERNATIONAL FILING DATE<br>28 September 2000          |  | PRIORITY DATE CLAIMED<br>29 September 1999                           |  |
| TITLE OF INVENTION<br>CAB-OVER-ENGINE VEHICLE WITH A NON-TIPPABLE CAB  |  |   |  |  |  |
| APPLICANT(S) FOR DO/EO/US<br>Ake BERGSTROM et al   |  |   |  |  |  |

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

- ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
- ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
- ☒ This is an express request to promptly begin national examination procedures (35 U.S.C. 371(f)).
- ☒ The US has been elected by the expiration of 19 months from the priority date (PCT Article 31).
- ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - ☐ is attached hereto (required only if not communicated by the International Bureau).
  - ☒ has been communicated by the International Bureau.
  - ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
- ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
- ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - ☐ are attached hereto (required only if not communicated by the International Bureau).
  - ☐ have been communicated by the International Bureau.
  - ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - ☒ have not been made and will not be made.
- ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
- ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
- ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 16 below concern document(s) or information included:

- ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
- ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
- ☒ A **FIRST** preliminary amendment.  
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
 

EXPRESS MAIL CERTIFICATE
- ☐ A substitute specification.
- ☐ A change of power of attorney and/or address letter.
- ☒ Other items or information:
 

Print EFS Form  
 Inventors Designation Sheet  
 Intl. Prelim. Exam. Report  
 Intl. Search Report & 5 references  
 5 Drawing Sheets (Figs. 1a-7)

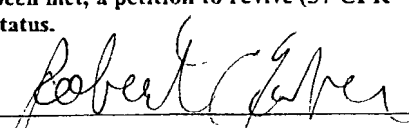
U.S. Patent and Trademark Office, P.O.  
 Box 2327, Arlington, VA 22202 on  
 March 29, 2002

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail Post Office to Addressee (mail label)  
**EL924372522US** in an envelope addressed to:

**Dorothy Jenkins**  
 Name of Person Mailing Correspondence

*Dorothy Jenkins*  
 Signature

**March 29, 2002**  
 Date of Signature

|  |              |  |  |                                     |    |
|--|--------------|--|--|-------------------------------------|----|
| U.S. APPLICATION NO. 107089597   |              | INTERNATIONAL APPLICATION NO. PCT/SE00/01874 |  | ATTORNEY'S DOCKET NUMBER P/1228-150 |    |
| 17. <input checked="" type="checkbox"/> The following fees are submitted:<br><b>BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)):</b><br>Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO ..... \$1,040.00<br>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO ..... 890.00<br>International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... 740.00<br>International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... 710.00<br>International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$100.00<br><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b> |              |  |  | <b>CALCULATIONS PTO USE ONLY</b>    |    |
|  |              |  |  |                                     |    |
| Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).  |              |  |  | \$                                  |    |
| CLAIMS   | NUMBER FILED | NUMBER EXTRA                                 | RATE   |                                     |    |
| Total claims   | 18 - 20 =    | 0  | X \$18.00  | \$                                  |    |
| Independent claims   | 1 - 3 =      | 0  | X \$84.00  | \$                                  |    |
| MULTIPLE DEPENDENT CLAIM(S) (if applicable)  |              |  | + 280.00   | \$                                  |    |
| <b>TOTAL OF ABOVE CALCULATIONS =</b>   |              |  |  | <b>\$ 1,040.00</b>                  |    |
| <input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.   |              |  |  | \$                                  |    |
| <b>SUBTOTAL =</b>  |              |  |  | <b>\$ 1,040.00</b>                  |    |
| Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).   |              |  |  | \$                                  |    |
| <b>TOTAL NATIONAL FEE =</b>  |              |  |  | <b>\$ 1,040.00</b>                  |    |
| Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property   |              |  |  | \$                                  |    |
| <b>TOTAL FEES ENCLOSED =</b>   |              |  |  | <b>\$ 1,040.00</b>                  |    |
|  |              |  |  | Amount to be refunded:              | \$ |
|  |              |  |  | charged:                            | \$ |
| a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>1,040.00</u> to cover the above fees is enclosed. <b>Check No. 8937</b>  |              |  |  |                                     |    |
| b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.  |              |  |  |                                     |    |
| c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>15-0700</u> . A duplicate copy of this sheet is enclosed.  |              |  |  |                                     |    |
| NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.  |              |  |  |                                     |    |
| SEND ALL CORRESPONDENCE TO:<br><b>OSTROLENK, FABER, GERB &amp; SOFFEN, LLP</b><br>1180 Avenue of the Americas<br>New York, NY 10036-8403<br><br>Tel: (212) 382 0700  |              |  | <br>SIGNATURE:<br>Robert C. Faber<br>NAME<br>24,322<br>REGISTRATION NUMBER |                                     |    |

INVENTOR INFORMATION

10/089597  
10099597 1171206  
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Inventor One Given Name:: Ake  
Family Name:: Bergstrom  
Postal Address Line One:: Slottsbrinksvagen 9  
City:: Mariefred  
Country:: Sweden  
Postal or Zip Code:: S-647 31  
Citizenship Country:: Sweden  
Inventor Two Given Name:: Par  
Family Name:: Wallin  
Postal Address Line One:: Rosta  
City:: Jarna  
Country:: Sweden  
Postal or Zip Code:: S-153 95  
Citizenship Country:: Sweden  
Inventor Three Given Name:: Michael  
Family Name:: Linden  
Postal Address Line One:: Centralvagen 11  
City:: Sodertalje  
Country:: Sweden  
Postal or Zip Code:: S-152 57  
Citizenship Country:: Sweden  
Inventor Four Given Name:: Fredrik  
Family Name:: Modahl  
Postal Address Line One:: Enbyvagen 3 B  
City:: Norsborg  
Country:: Sweden  
Postal or Zip Code:: S-145 90  
Citizenship Country:: Sweden  
Inventor Five Given Name:: Anders  
Family Name:: Gustavsson  
Postal Address Line One:: Berghallen  
City:: Gnesta  
Country:: Sweden  
Postal or Zip Code:: S-646 91  
Citizenship Country:: Sweden

CORRESPONDENCE INFORMATION

Correspondence Customer Number:: 000002352  
Electronic Mail One:: email@ostrolenk.com

APPLICATION INFORMATION

Title Line One:: CAB-OVER-ENGINE VEHICLE WITH A NON-TIPPA  
Title Line Two:: BLE CAB  
Total Drawing Sheets:: 5  
Formal Drawings?: Yes

10/11/99 10:10:10

Application Type:: Utility  
Docket Number:: P/1228-150  
Secrecy Order in Parent Appl.?:: No

PRIOR FOREIGN APPLICATIONS

Foreign Application One:: 9903517-2  
Filing Date:: 09-29-1999  
Country:: Sweden  
Priority Claimed:: Yes

Source:: PrintEFS Version 1.0.1

P/1228-150

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Åke BERGSTRÖM, et al.

Date: March 29, 2002

Serial No.: not yet known

Group Art Unit: not yet known

Filed: herewith

Examiner: not yet known

For: CAB-OVER-ENGINE VEHICLE WITH A NON-TIPPABLE CAB

U.S. Patent and Trademark Office  
P.O. Box 2327  
Arlington, VA 22202

Attn: Box PCT (US/DO/EO)

**PRELIMINARY AMENDMENT**

Prior to examination, please amend the application as follows.

**FEE CALCULATION**

Any additional fee required has been calculated as follows:

\_\_\_\_\_ If checked, "Small Entity" status is claimed.

|  | NO. CLAIMS<br>AFTER<br>AMENDMENT |       | HIGHEST NO.<br>PREVIOUSLY<br>PAID FOR |      | EXTRA PRESENT |   | RATE                | ADDIT.<br>FEE |
|--|----------------------------------|-------|---------------------------------------|------|---------------|---|---------------------|---------------|
| TOTAL  | 18                               | MINUS | 20                                    | * =  | 0             | X | (\$9 SE or \$18)    | \$0           |
| INDEP.   | 1                                | MINUS | 3                                     | ** = | 0             | X | (\$42 SE or \$84)   | \$0           |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM |                                  |       |                                       |      |               | X | (\$140 SE or \$280) | \$0           |
|  |                                  |       |                                       |      |               |   |                     | TOTAL \$ 0    |

\* not less than 20 \*\* not less than 3

In the event the actual fee is greater than the payment submitted or is inadvertently not enclosed or if any additional fee during the prosecution of this application is not paid, the Patent Office is authorized to charge the underpayment to Deposit Account No. 15-0700.

## CONTINGENT EXTENSION REQUEST

If this communication is filed after the shortened statutory time period had elapsed and no separate Petition is enclosed, the Commissioner of Patents and Trademarks is petitioned, under 37 C.F.R. § 1.136(a), to extend the time for filing a response to the outstanding Office Action by the number of months which will avoid abandonment under 37 C.F.R. § 1.135. The fee under 37 C.F.R. § 1.17 should be charged to our Deposit Account No. 15-0700.

## AMENDMENTS

  X   If checked, amendments to the specification and claims are submitted herewith.

1.   X   If checked, an abstract is submitted as the last page of Appendix A.

### 2. Specification:

Please delete the paragraph(s)/section(s) beginning at page 2, line 20 to page 2, line 22; paragraphs at page 3, line 10 to page 2, line 24; paragraph at page 3, line 26 to page 3, line 30; paragraphs at page 4, line 1 to page 4, line 6; and paragraph at page 4, line 15 to page 4, line 16 and replace such paragraph(s)/section(s) pursuant to 37 C.F.R. § 1.121(b)(ii) with the “clean” version attached hereto as Appendix A. Entry is respectfully requested. A version with markings to show the changes made pursuant to 37 C.F.R. § 1.121(b)(iii) is attached hereto as Appendix B.

### 3. Claims:

Please cancel claims 1-9 without prejudice.

Please add new claims 10-27 pursuant to 37 C.F.R. § 1.121(c)(i) as set forth in the “clean” version attached hereto as Appendix A. Entry is respectfully requested. A version with markings to show the changes made pursuant to 37 C.F.R. § 1.121(c)(ii) is attached hereto as Appendix B.



**APPENDIX A**  
**“CLEAN” VERSION OF EACH PARAGRAPH/SECTION/CLAIM**  
**37 C.F.R. § 1.121(b)(ii) AND (c)(i)**



(e.g. sand, gravel or small stones) accumulating or being caught on the steps, and also to help to reduce air resistance by providing the vehicle/driver's cab with more effective streamlining to reduce the risk of vortices that might generate resistance and cause dirt to adhere to the steps.

**Paragraph at page 3, line 26 to page 3, line 30:**

To ensure that the aforesaid cover which in the closed position (e.g. while the vehicle is in motion) conceals the panel which carries the steps will automatically pivot away and uncover the steps when the cab door is opened, it is advantageous to have the cab door movement initiate and control the movement of the cover. The cab door and the cover over the panel are detachably coupled so that they can be opened and closed together. There is a relative motion control absorbing arrangement between them allowing some relative movement between the cab door and the cover to compensate for cab springing and for different hinged pin positions for the door and cover.

**Paragraphs at page 4, line 1 to page 4, line 6:**

To avoid any risk of the driver's being hindered by the cover when he is climbing up to/down from the cab, it may be advantageous that the cab door and the associated cover be attached and to have the cover and the door of the cab being supported on respective hinge pins that are at different locations with respect to the longitudinal direction of the vehicle, and particularly with the hinge pin of the cover being situated slightly forward of the door hinged pin.

A simple and robust version of the associated control arrangement is described below.

**Paragraph at page 4, line 15 to page 4, line 16:**

A practical version of the panel control arrangement may then exhibit, for example, a hinged pin and pivot arrangement described below.

**CLAIMS (with indication of amended or new):**

**New 10.** A freight vehicle including lateral sides of the vehicle, a chassis, an engine for driving the vehicle supported on the chassis, a driver's cab mounted to the chassis and above the engine;

a compartment on the chassis in which the engine is disposed, the compartment having lateral sides at the lateral sides of the vehicle;

a panel at at least one of the lateral sides of the vehicle and laterally delineating the engine compartment, the panel being pivotally mounted on the chassis to pivot laterally outward between a closed position enclosing the at least one lateral side of the compartment and an open position permitting access past the panel to the engine in the compartment.

**New 11.** The vehicle of claim 10, wherein the panel is pivotally supported to pivot open laterally outwardly and also rearwardly with respect to the longitudinal direction of the vehicle for providing access to the compartment.

**New 12.** The vehicle of claim 11, further comprising a panel control arrangement connected with the panel and for controlling the movement of the panel to the open access position.

**New 13.** The vehicle of claim 10, further comprising at least one externally accessible step on the panel enabling a user to climb to the cab on the step.

**New 14.** The vehicle of claim 10, further comprising the chassis having a forward end; a frame on the chassis with a forward end that is toward the forward end of the vehicle chassis, a suspension arrangement on the frame and supporting the engine.

**New 15.** The vehicle of claim 10, further comprising a door on the cab at the at least one lateral side of the vehicle, the door is disposed above the at least one panel, and the door being hinge mounted to pivot open and closed.

**New** 16. The vehicle of claim 15, further comprising a cover disposed below the door of the cab and the cover being hinged mounted on the chassis and pivotable at the hinge mounting between a closed position at which the cover conceals the panel and an open position which reveals the panel.

**New** 17. The vehicle of claim 16, further comprising at least one externally accessible step on the panel enabling a user to climb to the cab on the step; the cover being shaped and positioned so that in the closed position of the cover, the cover conceals the panel and the at least one step thereon.

**New** 18. The vehicle of claim 16, further comprising a relative motion absorbing control arrangement detachably coupling the cab door above the cover and the cover over the panel, the arrangement permitting relative movement between the cab door and the cover compensating for a cab springing and for the hinge mounting of the door and the cover.

**New** 19. The vehicle of claim 18, wherein the door of the cab is hinge mounted to the cab at a first hinge position and the cover is hinge mounted to the chassis at a second hinge position that is at a different location longitudinally along the vehicle than the first hinge position; and the relative motion absorbing control arrangement enabling the continued coupling of the door and the cover during the pivoting thereof around their different longitudinal positioned hinged mountings.

**New** 20. The vehicle of claim 19, wherein the first hinge mount comprises a respective first hinge pin for the cab door and the second hinge mount comprises a second hinge pin for the cover, and the second hinge pin of the cover is situated slightly forward of the first hinge pin of the door along the longitudinal direction of the vehicle.

**New** 21. The vehicle of claim 19, wherein the control arrangement comprises a slide rod secured to the cover, a sleeve connected to the cab door, the sleeve receiving the slide rod therein and the sleeve and the slide rod being moveable with respect to each other; a jointed connection



**New** 27. The vehicle of claim 10, wherein the cab is non-tiltable with respect to the chassis, the engine compartment and the panel.

# **ABSTRACT**

Cab-over-engine freight vehicle with a driver's cab which is untiltable relative to the chassis and is situated above the vehicle's engine which is supported by the chassis. On each side of the vehicle there is a panel which is provided with steps, delineates the engine compartment laterally and is mounted pivotably on the chassis by means of a panel control arrangement which makes it possible to impart a displacement movement to the panel so that it swings outwards and rearwards in the longitudinal direction of the vehicle to an engine access position. Below the door of the driver's cab there is a cover which is hinged-mounted on the chassis and which in the closed position conceals the step panel situated inside it. The cab door and the cover below the door are detachably coupled with one another by a relative-motion absorbing control arrangement.

**APPENDIX B**  
**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**37 C.F.R. § 1.121(b)(iii) AND (c)(ii)**

**SPECIFICATION:**

**Paragraph at page 2, line 20 to page 2, line 22:**

In the kind of vehicle indicated in the introduction, the aforesaid problem is solved and the object achieved by the vehicle's exhibiting the constructional features of a vehicle having a chassis with an engine on the chassis on a driver's cab mounted above the chassis and particularly non-tiltably above the chassis. The engine is in an engine compartment on the chassis. At each lateral side of the vehicle at each lateral side of the engine compartment, there is a panel that laterally delineates the engine compartment and the panel is pivotally mounted on the chassis to pivot open. There may be a user accessible step on the outside of the panel. The panel is displaceable by outward pivoting and rearward movement in the longitudinal direction of the vehicle to allow access to the engine. A cover is pivoted to the chassis at a hinge at about the same longitudinal direction position as the door hinge. The cover closes over the panel. A control arrangement joins the cab door and the cover to swing open and closed together and accommodates relative motion between the cab door and the cover [indicated in the characterising part of claim 1].

**Paragraphs at page 3, line 10 to page 2, line 24:**

To make access to the engine from the sides still easier in such cases, it is possible to have the frame side members ending in the region immediately to the rear of the rear of the engine. The engine is then not fitted between the frame side members but advantageously in a special arrangement which may consist of a beam structure or framework structure and which is designed to provide good access to the engine from both sides. The chassis incorporates a framework structure and a suspension arrangement supporting the engine is fastened to the forward end of the frame structure [A freight vehicle according to claim 2 may then be preferable].

If the panel delineating laterally the engine compartment is provided with external steps to help the driver climb up to/down from the cab, it is often desirable that these steps be concealed behind a special cover while the vehicle is in motion, to prevent the possibility of loose material (e.g. sand, gravel or small stones) accumulating or being caught on the steps, and also to help to reduce air resistance by providing the vehicle/driver's cab with more effective streamlining to reduce the risk of vortices that might generate resistance and cause dirt to adhere to the steps. [The freight vehicle may therefore advantageously exhibit the constructional features indicated in claim 3.]

**Paragraph at page 3, line 26 to page 3, line 30:**

To ensure that the aforesaid cover which in the closed position (e.g. while the vehicle is in motion) conceals the panel which carries the steps will automatically pivot away and uncover the steps when the cab door is opened, it is advantageous to have the cab door movement initiate and control the movement of the cover. The cab door and the cover over the panel are detachably coupled so that they can be opened and closed together. There is a relative motion control absorbing arrangement between them allowing some relative movement between the cab door and the cover to compensate for cab springing and for different hinged pin positions for the door and cover [A version of the freight vehicle according to claim 4 provides a practical solution in this respect].

**Paragraphs at page 4, line 1 to page 4, line 6:**

To avoid any risk of the driver's being hindered by the cover when he is climbing up to/down from the cab, it may be advantageous that the cab door and the associated cover be attached and to have the cover and the door of the cab being supported on respective hinge pins that are at different locations with respect to the longitudinal direction of the vehicle, and particularly with the hinge pin of the cover being situated slightly forward of the door hinge pin [as indicated in claim 5].





**Cab-over-engine vehicle with a non-tippable cab**

The present invention relates to a cab-over-engine (COE) freight vehicle which has a chassis and a driver's cab which is mounted untiltably on the chassis and situated  
5 above the vehicle's engine, which is supported by the chassis.

**State of the art**

Trucks may be divided into the two categories of "conventional trucks" and "COE  
10 trucks". Conventional trucks have their engine situated in front of the driver's cab and covered by a traditional bonnet which incorporates portions and panels/hatches which are easy to open (pivotalable aside) so that the engine is readily accessible for inspection and repair. At a given total vehicle length, however, this tandem positioning of the engine and the driver's cab results in occupation of part of the space in the  
15 longitudinal direction of the vehicle which could otherwise be used as load space. This limits the truck's load capacity, thereby impairing its transport economics.

To enable a larger proportion of a given total vehicle length to be used as effective load space, the trend has increasingly been towards building freight vehicles in the  
20 form of COE trucks, in which the driver's cab is situated over the engine. Part of the portion of the vehicle's total length which in conventional trucks is occupied by the engine and bonnet can therefore be utilised in COE trucks as load space, substantially increasing the vehicle's load capacity and improving its transport economics.

25 The fact that COE trucks have their engine situated under the floor of the driver's cab makes it necessary in practice for the cab to be tiltable forwards to enable the engine to be uncovered as necessary for servicing and repair purposes. A tiltable cab does entail, however, significant design problems due to the need for a special tilt mounting, mechanisms for locking the cab in the untilted driving position, and various  
30 devices which make the tilting movement possible and transmit motion between controls fitted in the cab (e.g. steering wheel, pedals, hand-operated controls etc.) and the front wheels, engine/gearbox, wheel brakes and other equipment mounted on the chassis. A further need is for flexible and stretchable wiring for transmitting electric

current and control signals between the driver's cab and the chassis and the equipment mounted on the chassis.

### Object of the invention

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The primary problem on which the invention is based is how to eliminate entirely the aforesaid design problems arising from the driver's cab being tiltable and at the same time provide the possibility of satisfactory access to the engine for servicing and repair, from either side of the vehicle, while still maintaining the COE truck's

10 "compactness" as regards the total cab/engine length.

An associated object of the invention is to provide a freight vehicle in which the wall elements which delineate the engine compartment laterally and are connected to and/or mounted on the chassis (e.g. panels, hatches etc), and other vehicle parts (e.g. steps) alongside the engine, are easy to move out of the way or aside or to open so as to provide good access to the engine from both sides of the vehicle.

15

### Description of the invention

20

In the kind of vehicle indicated in the introduction, the aforesaid problem is solved and the object achieved by the vehicle's exhibiting the constructional features indicated in the characterising part of claim 1.

25

Each side of the vehicle thus requires at least one panel which not only delineates the engine compartment laterally but may possibly also be provided with one or more steps and is attached by means of a special panel guide mechanism or guide which enables the panel to be pivoted outwards from the vehicle's centreline and rearwards in the longitudinal direction of the vehicle to a displaced position in which the panel no longer hinders the direct access to the engine required for carrying out engine repair or inspection/servicing.

30

Preferred and advantageous embodiments of the freight vehicle according to the invention may also exhibit the further features indicated by the dependent patent claims.

- 5 In cases where the freight vehicle's chassis incorporates a frame structure in the form of a beam frame, a COE vehicle's engine will usually be situated at least partially between the parallel frame side members, particularly if the latter extend to the forward bumper at the front of the driver's cab.
- 10 To make access to the engine from the sides still easier in such cases, it is possible to have the frame side members ending in the region immediately to the rear of the rear of the engine. The engine is then not fitted between the frame side members but advantageously in a special arrangement which may consist of a beam structure or framework structure and which is designed to provide good access to the engine from
- 15 both sides. A freight vehicle according to claim 2 may then be preferable.

- If the panel delineating laterally the engine compartment is provided with external steps to help the driver climb up to/down from the cab, it is often desirable that these steps be concealed behind a special cover while the vehicle is in motion, to prevent
- 20 the possibility of loose material (e.g. sand, gravel or small stones) accumulating or being caught on the steps, and also to help to reduce air resistance by providing the vehicle/driver's cab with more effective streamlining to reduce the risk of vortices that might generate resistance and cause dirt to adhere to the steps. The freight vehicle may therefore advantageously exhibit the constructional features indicated in claim 3.

- 25 To ensure that the aforesaid cover which in the closed position (e.g. while the vehicle is in motion) conceals the panel which carries the steps will automatically pivot away and uncover the steps when the cab door is opened, it is advantageous to have the cab door movement initiate and control the movement of the cover. A version of the
- 30 freight vehicle according to claim 4 provides a practical solution in this respect.

To avoid any risk of the driver's being hindered by the cover when he is climbing up to/down from the cab, it may be advantageous that the cab door and the associated cover be attached as indicated in claim 5.

- 5 A simple and robust version of the associated control arrangement may advantageously exhibit the features indicated in patent claims 6 and 7.

To provide optimum access to the vehicle engine for servicing and repair, it is preferable that the panel control arrangement be such that the panel can reliably move  
10 completely clear of the aperture which the cover coupled to the cab door uncovers as the door and cover open. An advantageous displaced position for the panel is then close to and alongside the vehicle's front wheel, with the panel "parked" parallel to the outside of the wheel.

- 15 A practical version of the panel control arrangement may then exhibit, for example, the constructional features indicated in claims 8 and 9.

#### Brief description of the drawings

- 20 The invention will now be illustrated and explained with reference to embodiments depicted in the attached drawings, which are as follows:

Fig. 1a depicts in schematic side view a COE truck with constructional features according to the present invention;

25

Fig. 1b depicts the left half of the driver's cab in Fig. 1a, viewed from above;

Fig. 2 depicts on a larger scale and in perspective a portion of a truck (of the kind depicted in Fig. 1) in the region of one of the cab's door apertures and the steps situated below;

30

Fig. 3 depicts the same region of a truck as Fig. 2, but with the step panel displaced to a position alongside one of the truck's front wheels;

Fig. 4 depicts the step panel according to Fig. 3 viewed in a direction oblique to the wheel housing situated there;

5 Fig. 5 depicts on a still larger scale a control arrangement which absorbs relative motion and by which the truck's cab door is releasably coupled to a cover outside the step panel;

Fig. 6 depicts an enlarged detail of the control arrangement in Fig. 5;

10

Fig. 7 depicts on a larger scale the guide arm which is mounted on the wheel housing and which forms part of the step panel control arrangement according to Fig. 4.

15 Description of an embodiment

The invention is illustrated and explained in more detail below with reference to the driver's cab region of a COE (cab-over-engine) truck depicted as viewed from the side and from above in Figs. 1a and 1b respectively, and the portions and parts depicted in  
20 Figs. 2-7 which are primarily relevant to the invention.

The freight vehicle partially depicted in side view in Fig. 1 consists of a COE truck 2 with a chassis 4 and a driver's cab 6 mounted on the forward part of the chassis. The chassis incorporates in a conventional manner components not depicted here in more  
25 detail, such as power transmission elements and various items that are necessary for the vehicle's propulsion. The chassis 4 comprises a skeleton or frame structure which may in a conventional manner be made of steel beams or be composed of structural elements similar to box girders. The chassis and the more detailed construction of the chassis frame are nevertheless of no crucial significance for the present invention.

30 The truck relevant here is provided with a fixed cab, which means that the cab 6 is mounted untiltably relative to the chassis 4. The cab is also situated above the engine 7 (schematically depicted as a "block") which is supported by the chassis 4 of the vehicle 2 and which in this case may be regarded as fitted (suspended) in a special

suspension arrangement 8 composed of beams, rods or other loadbearing elements. This special suspension arrangement 8 supporting the engine 7 is then fastened to the forward portion of the frame side members of the chassis 4, the front ends 10 of which are situated in the region of the vehicle's front wheels 12.

5

On each side of the vehicle 2 there is a panel 14 which is mounted pivotably on the chassis 4 and which in its normal position of use (see Fig. 2) forms part of the sidewall of the engine compartment and thereby limits access to the engine from the outside. The panel 14 is provided on its outside with three steps 16,18,20 (see Figs. 2-4). The step panel 14 is mounted pivotably in the suspension arrangement 8 by means of a panel control arrangement which provides the panel with a movement displacing it from the normal position of use of the step panel (Fig. 2) by pivoting it outwards and rearwards in the longitudinal direction of the vehicle to an engine access position (see Figs. 3-4). In this displaced position the panel 14 is situated directly alongside a side cover 22 to the wheel housing 24 of the front wheel 12. In its normal retracted position of use (Fig. 2) when the vehicle is in motion the step panel 14 is concealed by a cover 26 which is hinge-mounted on the chassis 4 in the region directly below the cab door 28 situated there.

20 The cab door 28 and the cover 26 below the door are detachably coupled together by a control arrangement 30 which absorbs relative motion. It is via this control arrangement that the opening/closing of the cover 26 is controlled by the movement of the cab door 28. The control arrangement 30 is designed to allow a certain relative motion between the door and the cover. This is necessary to compensate for the individual springing motion of the cab 6 (and hence the cab door 28) relative to the cover 26 hinge-mounted on the chassis. The relative motion absorbing control arrangement 30 is also required to compensate for different hinge pin positioning on the door 28 and the cover 26. The hinge pin of the cover 26 is preferably situated slightly forward of the hinge pin of the door 28, as viewed in the forward direction of the vehicle and as depicted most clearly in Fig. 1b.

30

The construction, fastening and positioning of the control arrangement 30 relative to the door 28 and the cover 26 are depicted on a larger scale in Figs. 5 and 6, which will now be referred to.

- 5 The control arrangement 30 incorporates a slide rod 32, which is connected securely to the cover 26, and a sleeve 34 which is mounted for rotation and longitudinal movement relative to the slide rod and which is connected to the cab door 28 by jointed connecting devices 36,38,40,42,44. The slide rod 32 is fitted in a bracket 46 which is fastened to the upper part of the cover 26 and which incorporates a bottom
- 10 plate 48 which is screwed firmly to the door 26 and which has end flanges 50,52 between which the slide rod 32 is fastened. The sleeve 34 has an external lever arm 36 which is connected via a ball joint 38, a fastening screw 40 and a fastening element 42 to a bracket 44 which is fastened to the lower part of the cab door 28. The fastening element 42 is riveted securely (by rivets 43) to the bracket 44.

15

- A special type of panel control arrangement, the main parts of which are depicted in Fig. 4, is used for moving the step panel 14 from its normal retracted position of use (see Fig. 2) to its fully displaced position (see Figs. 3 and 4) which provides unobstructed access to the vehicle's engine via the aperture created jointly by the
- 20 opening of the cab door 28 and the cover 26 (see Fig. 3).

- The desired displacement movement of the step panel 14 is achieved by using for each panel a panel control arrangement incorporating a four-joint mechanism with two hinge arms 54,56 which have their outer ends 54',56' attached pivotingly to the inside
- 25 of the panel 14. The hinge arms' inner ends 54'', 56'' are themselves attached pivotingly respectively to a framework 58 (connected to the chassis or the suspension arrangement 8) and a conical mounting 60. The mounting 60 is fastened on top of the wheel housing 24 of the front wheel 12.

- 30 To prevent the panel control arrangement becoming unsteady and unstable, the hinge arm 54 attached to the framework 58 takes the form of a gatelike unit incorporating two bent bars 62', 62'' which run parallel, are arranged substantially horizontally and are linked together by two vertically arranged parallel tiebars 64.



The step panel's other hinge arm 56 attached to the wheel housing consists, as indicated most clearly by Fig. 7, of a horizontally arranged bent rod 66, one end of which is attached to the conical mounting 60 by a setscrew 70 provided with a ball joint 68. The other end of the bent rod 66 is connected to the inside of the step panel 14 via a swivel 72 and a retaining yoke 74.

**Patent claims**

1. Cab-over-engine freight vehicle (2) which has a chassis (4) and a driver's cab (6)  
which is mounted untiltably on the chassis and is situated above the vehicle's  
5 engine (7) which is supported by the chassis, **characterised** in that on each side of  
the vehicle there is a panel (14) which delineates laterally the engine compartment,  
is mounted pivotably on the chassis, may possibly be provided with at least one  
external step (16,18,20) and is attached by means of a panel control arrangement  
10 (54,56) which makes it possible to subject the panel to a displacement movement  
by pivoting it outwards and rearwards in the longitudinal direction of the vehicle to  
an engine access position.
2. Freight vehicle according to claim 1, **characterised** in that the chassis incorporates  
a frame structure which has fastened to its forward end a suspension arrangement  
15 (8) supporting the engine (7).
3. Freight vehicle according to claim 1 or 2, **characterised** in that on each side of the  
vehicle there is in the region below the respective door (28) of the driver's cab a  
cover (26) which is hinge-mounted on the chassis and which in its closed position  
20 conceals the panel (14) which is provided with preferably two or more steps  
(16,18,20) and is supported inside for pivoting on the chassis.
4. Freight vehicle according to claim 3, **characterised** in that the respective cab door  
(28) and the hinge-mounted cover (26) below the door are detachably coupled to  
25 one another by a relative-motion absorbing control arrangement (30) which allows  
some relative movement between the cab door and the cover to compensate for cab  
springing and for different hinge-pin positioning on the door and the cover.
5. Freight vehicle according to claim 3 or 4, **characterised** in that the cab door (28)  
30 and the associated cover (26) are pivotable about different hinge-pins, and the  
hinge-pin of the cover is preferably situated slightly forward of the door hinge-pin, as  
viewed in the forward direction of the vehicle.

6. Freight vehicle according to claim 5, **characterised** in that the control arrangement (30) incorporates a slide rod (32) which is connected securely to the cover (26), and a sleeve element which is arranged movably on the slide rod and is connected to the cab door (28) by jointed connecting devices (36,38,40,42,44).

5

7. Freight vehicle according to claim 6, **characterised** in that the slide rod (32) is fitted in a bracket (46) which is fastened to the upper part of the cover (26), and that the sleeve element (34), which is supported for rotation and longitudinal movement on the slide rod, is provided with an external lever arm (36) which is connected via a ball joint (38) and a fastening element (42) to a bracket (44) fastened to the lower part of the cab door.

10

8. Freight vehicle according to any one of claims 1-7, **characterised** in that the panel control arrangement for each panel incorporates a four-joint mechanism with two hinge arms (54,56) which have their outer ends (54',56') attached pivotingly to the inside of the panel (14) and their inner ends (54'',56'') attached pivotingly respectively to a framework (58) which is connected to the chassis, and to a mounting (60) fastened to a wheel housing (24) for the vehicle's front wheel (12) on the respective side of the vehicle.

15

20

9. Freight vehicle according to claim 8, **characterised** in that the hinge arm (54) attached to the framework incorporates two bent bars (62',62'') which run parallel, are arranged substantially horizontally and are linked together by a pair of parallel tiebars (64) arranged substantially vertically, and that the hinge arm (56) attached to the wheel housing consists of a bent rod (66) arranged horizontally.

25

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(71) Applicant (for all designated States except US): SCANIA  
CV AB (publ) [SE/SE]; S-151 87 Södertälje (SE).

(SE) WALLIN, Pär [SE/SE]; Rosta, S-153 95 Järna (SE).  
LINDÉN, Michael [SE/SE]; Centralvägen 11, S-152 57  
Södertälje (SE). MODAHL, Fredrik [SE/SE]; Enbyvägen  
3 B, S-145 90 Norsborg (SE). GUSTAVSSON, Anders  
[SE/SE]; Berghällén, S-646 91 Gnesta (SE).

(74) Agent: FORSELL, Hans; Scania CV AB, Patent, S-151  
87 Södertälje (SE).

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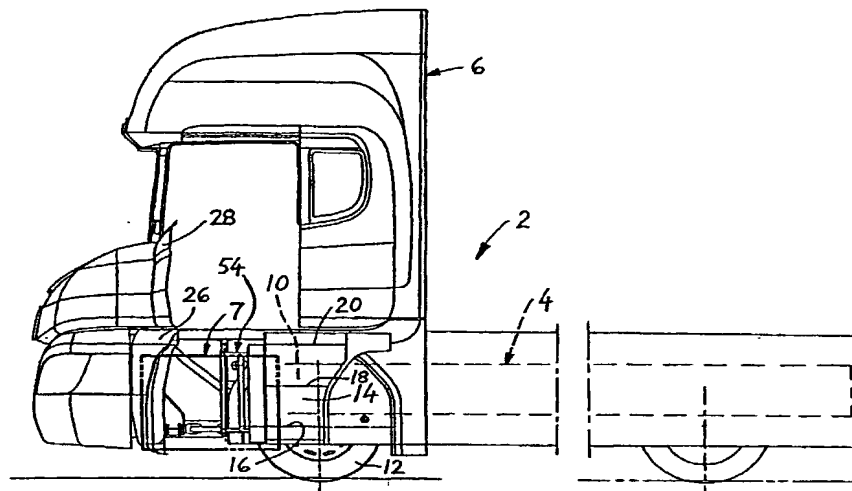
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(72) Inventors; and

(75) Inventors/Applicants (for US only): BERGSTRÖM,  
Åke [SE/SE]; Slottsbrinksvägen 9, S-647 31 Mariefred

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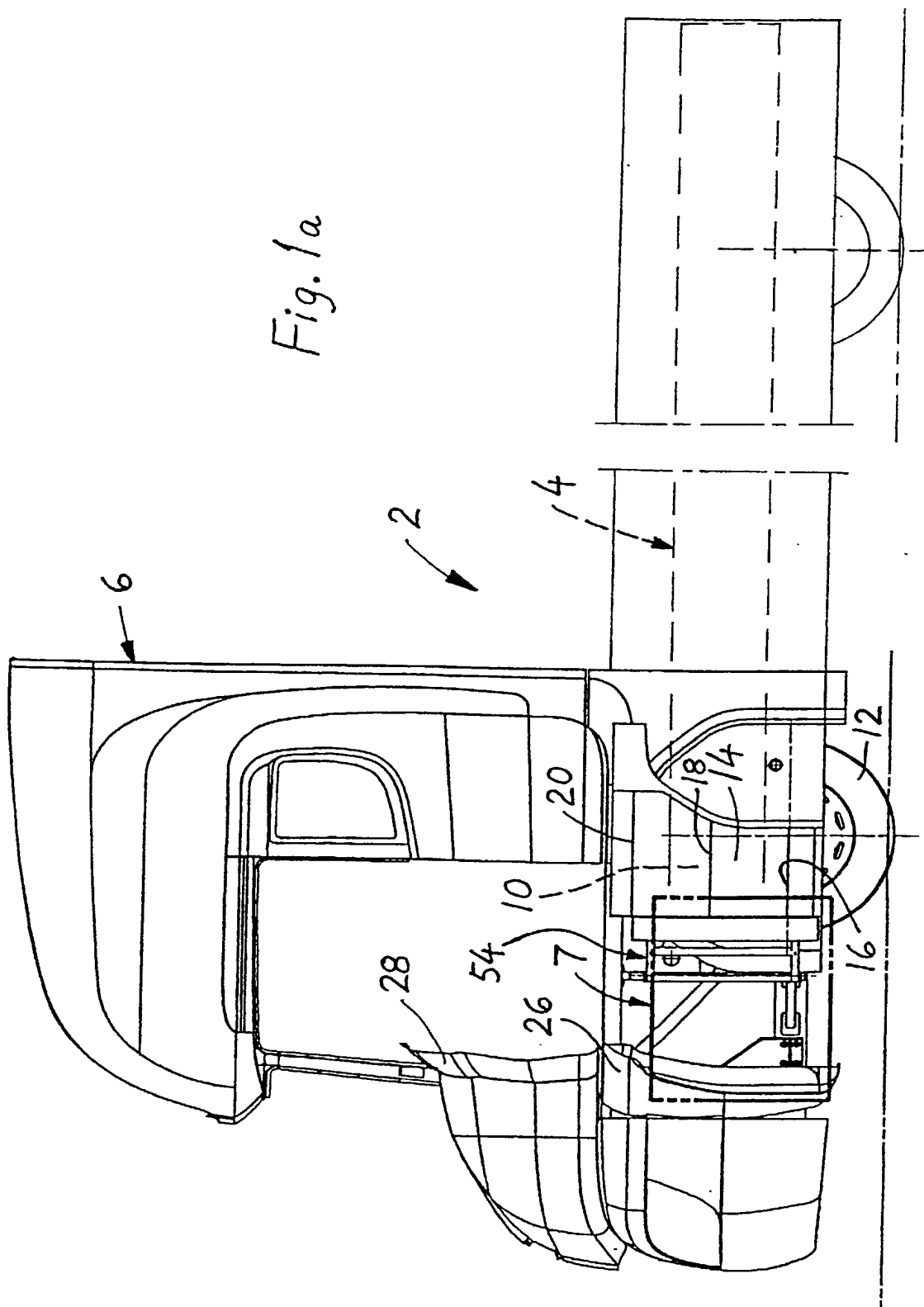
(54) Title: CAB-OVER-ENGINE VEHICLE WITH A NON-TIPPABLE CAB



(57) Abstract: Cab-over-engine freight vehicle (2) with a driver's cab (6) which is untiltable relative to the chassis (4) and is situated above the vehicle's engine (7) which is supported by the chassis. On each side of the vehicle there is a panel (14) which is provided with steps, delineates the engine compartment laterally and is mounted pivotably on the chassis by means of a panel control arrangement (54, 56) which makes it possible to impart a displacement movement to the panel so that it swings outwards and rearwards in the longitudinal direction of the vehicle to an engine access position. Below the door (28) of the driver's cab there is a cover (26) which is hinged-mounted on the chassis and which in the closed position conceals the step panel (14) situated inside it. The cab door (28) and the cover (26) below the door are detachably coupled with one another by a relative-motion absorbing control arrangement (30).

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Fig. 1a



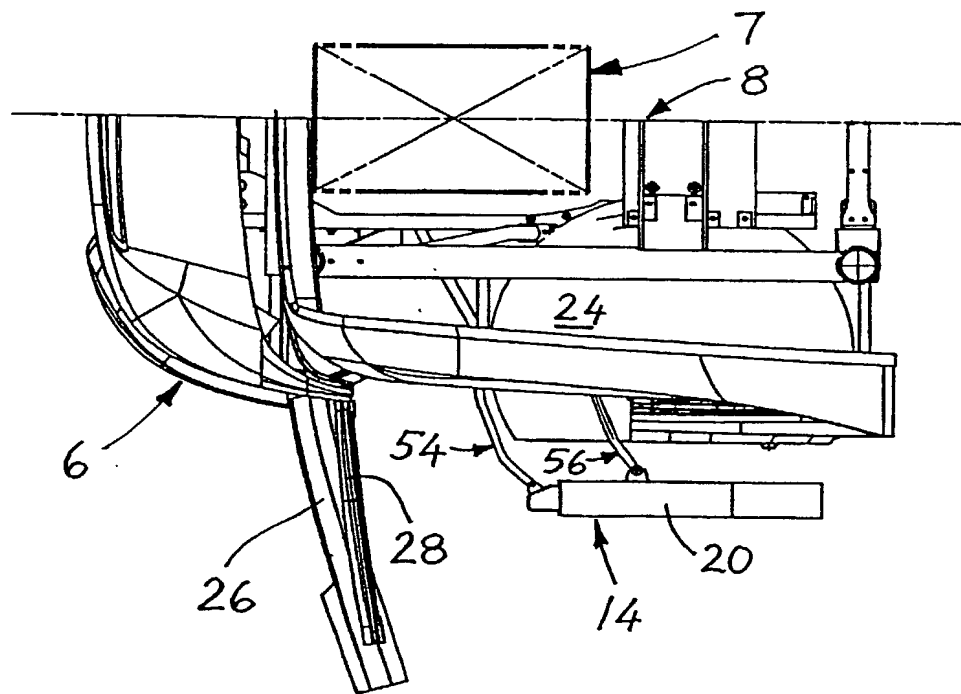
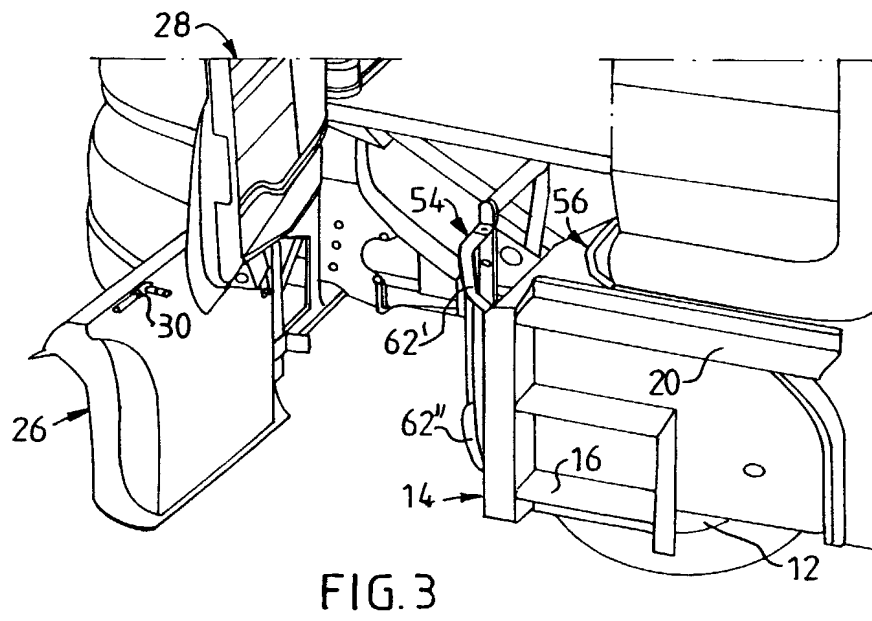
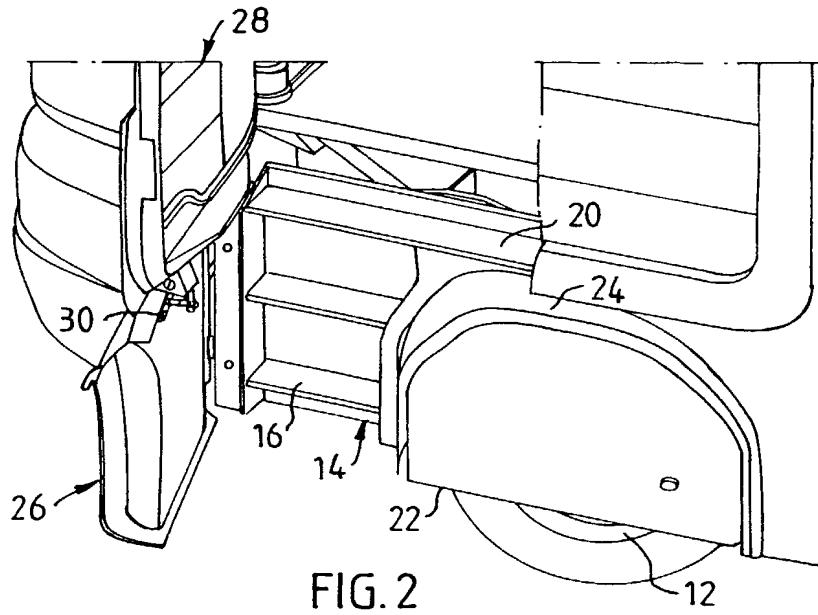


Fig. 1b



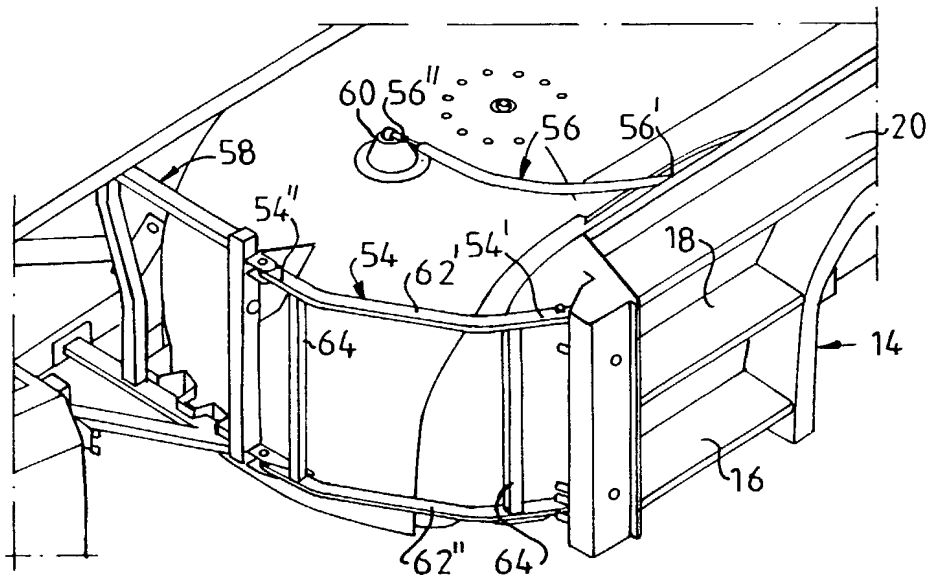


FIG. 4

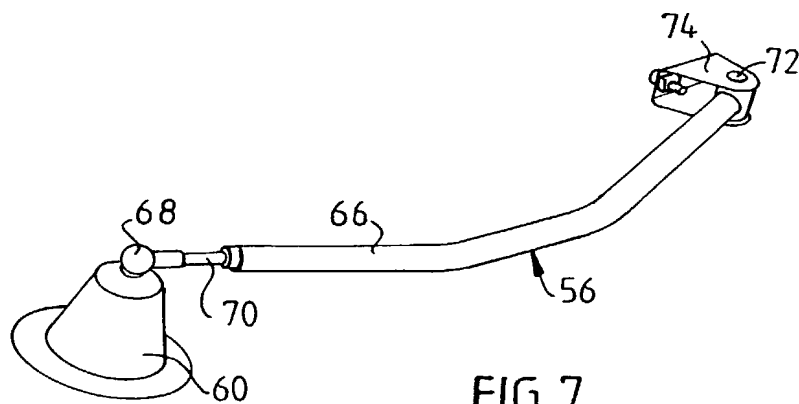


FIG. 7



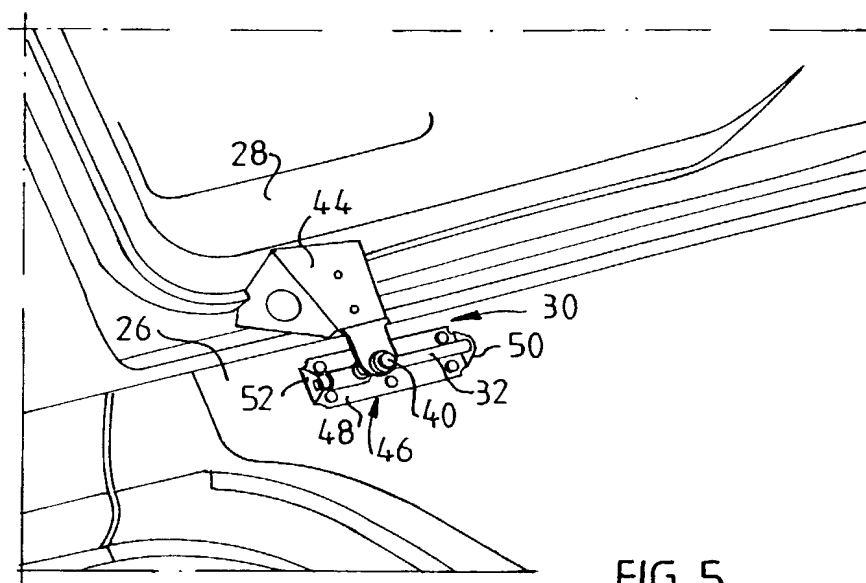


FIG. 5

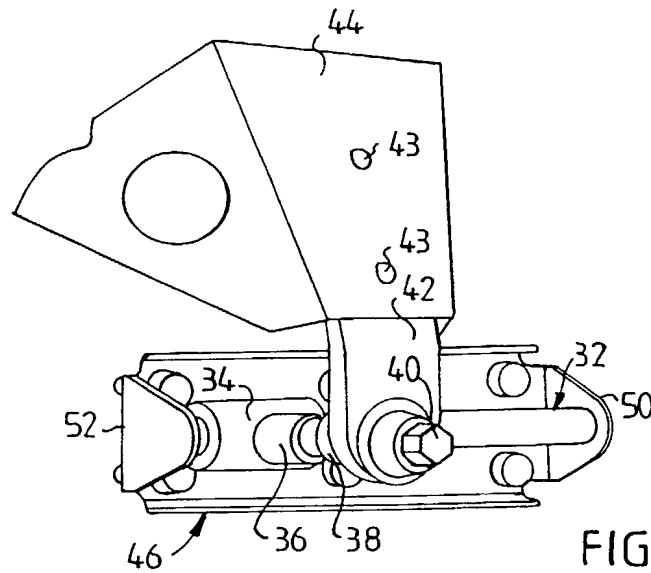


FIG. 6

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| <p>As a below named inventor, I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor (if only one name is listed below) or a joint inventor (if plural inventors are named) of the subject matter which is claimed and for which a patent is sought on the invention entitled:</p> <p><b>Cab-over-engine vehicle with a non-tippable cab</b></p>  |  |  |   |         |                    |                                      |   |        |           |                   |   |  |  |  |  |  |  |  |  |                                     |                                      |  |  |  |  |  |  |  |  |  |  |   |  |                               |  |  |   |  |  |  |  |   |                               |  |  |   |   |  |  |
| <p>the specification of which is attached hereto, unless the following box is checked:</p> <p><input checked="" type="checkbox"/> was filed on <b>28 September 2000</b> as United States patent Application Number or PCT International patent application number <b>PCT/SE00/01874</b> and was amended on _____ (if any).</p> <p>I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.</p> <p>I acknowledge the duty to disclose all information known to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56.</p> <p>I hereby claim priority benefits under Title 35, United States Code §119 of any foreign application(s) for patent or inventor's certificate or United States provisional application(s) listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:</p> <p>Prior Foreign or Provisional Application(s)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">COUNTRY</th> <th style="width: 25%;">APPLICATION NUMBER</th> <th style="width: 25%;">DATE OF FILING<br/>(day, month, year)</th> <th style="width: 25%;">PRIORITY CLAIMED<br/>UNDER 35 U.S.C. 119</th> </tr> </thead> <tbody> <tr> <td>SWEDEN</td> <td>9903517-2</td> <td>29 September 1999</td> <td>YES <input checked="" type="checkbox"/> NO <input type="checkbox"/></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td>YES <input type="checkbox"/> NO <input type="checkbox"/></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td>YES <input type="checkbox"/> NO <input type="checkbox"/></td> </tr> </tbody> </table> <p>I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">UNITED STATES<br/>APPLICATION NUMBER</th> <th style="width: 30%;">DATE OF FILING<br/>(day, month, year)</th> <th style="width: 40%;">STATUS<br/>(patented, pending, abandoned)</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>I hereby appoint customer no. 2352 OSTROLENK, FABER, GERB &amp; SOFFEN, LLP, and the members of the firm, Samuel H. Weiner - Reg. No. 18,510; Jerome M. Berliner - Reg. No. 18,653; Robert C. Faber - Reg. No. 24,322; Edward A. Meilman - Reg. No. 24,735; Steven I. Weisburd - Reg. No. 27,409; Max Moskowitz - Reg. No. 30,576; Stephen A. Soffen - Reg. No. 31,063; James A. Finder - Reg. No. 30,173; William O. Gray, III - Reg. No. 30,944; Louis C. Dujmich - Reg. No. 30,625; Douglas A. Miro - Reg. No. 31,643, and Michael J. Scheer - Reg. No. 34,425, as attorneys with full power of substitution and revocation to prosecute this application, to transact all business in the Patent &amp; Trademark Office connected therewith and to receive all correspondence.</p> <p>SEND CORRESPONDENCE TO: <b>OSTROLENK, FABER, GERB &amp; SOFFEN, LLP</b> DIRECT TELEPHONE CALLS TO: <b>(212) 382-0700</b><br/> <b>1180 AVENUE OF THE AMERICAS</b><br/> <b>NEW YORK, NEW YORK 10036-8403</b><br/> <b>CUSTOMER NO. 2352</b></p> <p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">FULL NAME OF SOLE OR FIRST INVENTOR<br/><b>Ake BERGSTROM</b></td> <td style="width: 30%;">INVENTOR'S SIGNATURE<br/><i>Ake Bergstrom</i></td> <td style="width: 30%;">DATE<br/><b>April 16, 2002</b></td> </tr> <tr> <td colspan="2">RESIDENCE (City and either State or Foreign Country)<br/><b>SE-647 31 Mariefred, SWEDEN</b></td> <td>COUNTRY OF CITIZENSHIP<br/><b>SWEDEN</b></td> </tr> <tr> <td colspan="3">POST OFFICE ADDRESS<br/><b>Slottsbrinksvägen 9, SE-647 31 Mariefred, SWEDEN</b></td> </tr> <tr> <td>FULL NAME OF SECOND JOINT INVENTOR (IF ANY)<br/><b>Pär WALLIN</b></td> <td>INVENTOR'S SIGNATURE<br/><i>Pär Wallin</i></td> <td>DATE<br/><b>April 16, 2002</b></td> </tr> <tr> <td colspan="2">RESIDENCE (City and either State or Foreign Country)<br/><b>SE-153 00 Järna, SWEDEN</b></td> <td>COUNTRY OF CITIZENSHIP<br/><b>SWEDEN</b></td> </tr> <tr> <td colspan="3">POST OFFICE ADDRESS<br/><b>Fredriksberg, SE-153 00 Järna, SWEDEN</b></td> </tr> </table> |  |  |   | COUNTRY | APPLICATION NUMBER | DATE OF FILING<br>(day, month, year) | PRIORITY CLAIMED<br>UNDER 35 U.S.C. 119 | SWEDEN | 9903517-2 | 29 September 1999 | YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> |  |  |  | YES <input type="checkbox"/> NO <input type="checkbox"/> |  |  |  | YES <input type="checkbox"/> NO <input type="checkbox"/> | UNITED STATES<br>APPLICATION NUMBER | DATE OF FILING<br>(day, month, year) | STATUS<br>(patented, pending, abandoned) |  |  |  |  |  |  |  |  |  | FULL NAME OF SOLE OR FIRST INVENTOR<br><b>Ake BERGSTROM</b> | INVENTOR'S SIGNATURE<br><i>Ake Bergstrom</i> | DATE<br><b>April 16, 2002</b> | RESIDENCE (City and either State or Foreign Country)<br><b>SE-647 31 Mariefred, SWEDEN</b> |  | COUNTRY OF CITIZENSHIP<br><b>SWEDEN</b> | POST OFFICE ADDRESS<br><b>Slottsbrinksvägen 9, SE-647 31 Mariefred, SWEDEN</b> |  |  | FULL NAME OF SECOND JOINT INVENTOR (IF ANY)<br><b>Pär WALLIN</b> | INVENTOR'S SIGNATURE<br><i>Pär Wallin</i> | DATE<br><b>April 16, 2002</b> | RESIDENCE (City and either State or Foreign Country)<br><b>SE-153 00 Järna, SWEDEN</b> |  | COUNTRY OF CITIZENSHIP<br><b>SWEDEN</b> | POST OFFICE ADDRESS<br><b>Fredriksberg, SE-153 00 Järna, SWEDEN</b> |  |  |
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| FULL NAME OF SOLE OR FIRST INVENTOR<br><b>Ake BERGSTROM</b>  | INVENTOR'S SIGNATURE<br><i>Ake Bergstrom</i> | DATE<br><b>April 16, 2002</b>            |   |         |                    |                                      |   |        |           |                   |   |  |  |  |  |  |  |  |  |                                     |                                      |  |  |  |  |  |  |  |  |  |  |   |  |                               |  |  |   |  |  |  |  |   |                               |  |  |   |   |  |  |
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| POST OFFICE ADDRESS<br><b>Slottsbrinksvägen 9, SE-647 31 Mariefred, SWEDEN</b>   |  |  |   |         |                    |                                      |   |        |           |                   |   |  |  |  |  |  |  |  |  |                                     |                                      |  |  |  |  |  |  |  |  |  |  |   |  |                               |  |  |   |  |  |  |  |   |                               |  |  |   |   |  |  |
| FULL NAME OF SECOND JOINT INVENTOR (IF ANY)<br><b>Pär WALLIN</b>   | INVENTOR'S SIGNATURE<br><i>Pär Wallin</i>    | DATE<br><b>April 16, 2002</b>            |   |         |                    |                                      |   |        |           |                   |   |  |  |  |  |  |  |  |  |                                     |                                      |  |  |  |  |  |  |  |  |  |  |   |  |                               |  |  |   |  |  |  |  |   |                               |  |  |   |   |  |  |
| RESIDENCE (City and either State or Foreign Country)<br><b>SE-153 00 Järna, SWEDEN</b>   |  | COUNTRY OF CITIZENSHIP<br><b>SWEDEN</b>  |   |         |                    |                                      |   |        |           |                   |   |  |  |  |  |  |  |  |  |                                     |                                      |  |  |  |  |  |  |  |  |  |  |   |  |                               |  |  |   |  |  |  |  |   |                               |  |  |   |   |  |  |
| POST OFFICE ADDRESS<br><b>Fredriksberg, SE-153 00 Järna, SWEDEN</b>  |  |  |   |         |                    |                                      |   |        |           |                   |   |  |  |  |  |  |  |  |  |                                     |                                      |  |  |  |  |  |  |  |  |  |  |   |  |                               |  |  |   |  |  |  |  |   |                               |  |  |   |   |  |  |

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4-00

5-00

INVENTORS DESIGNATION SHEET

TITLE: CAB-OVER-ENGINE VEHICLE WITH A NON-TIPPABLE CAB

PRIORITY CLAIMED UNDER 35 U.S.C. 119:

1. COUNTRY: Sweden  
APPLICATION NO.: 9903517-2  
DATE OF FILING: September 29, 1999

INVENTOR #1: Åke BERGSTRÖM  
RESIDENCE: S-647 31 Mariefred, Sweden  
CITIZENSHIP: Sweden

INVENTOR #2: Pär WALLIN  
RESIDENCE: S-153 95 Järna, Sweden  
CITIZENSHIP: Sweden

INVENTOR #3: Michael LINDÉN  
RESIDENCE: S-152 57 Södertälje, Sweden  
CITIZENSHIP: Sweden

INVENTOR #4: Fredrik MODAHL  
RESIDENCE: S-145 90 Norsborg, Sweden  
CITIZENSHIP: Sweden

INVENTOR #5: Anders GUSTAVSSON  
RESIDENCE: S-646 91 Gnesta, Sweden  
CITIZENSHIP: Sweden

SEND CORRESPONDENCE TO:

OSTROLENK, FABER, GERB & SOFFEN  
1180 Avenue of the Americas  
New York, New York 10036-8403

Telephone No.: 212-382-0700

Attention: Robert C. Faber  
Registration No. 24,322